

VESTAMID® HT*plus* for LED technology

Longer. Brighter. Whiter.

LEDs with reflector bases made of VESTAMID® HT*plus* (PA10T) function longer, shine brighter and stay whiter.

The newest lighting generation

LEDs are now the solution of choice in more and more areas of application. No wonder! Light-emitting diodes possess numerous advantages over conventional light bulbs: LEDs use less energy to produce the same amount of light, they generate less heat, are less susceptible to shock and achieve significantly lower switching times. That is why they have already replaced light bulbs in a whole range of special applications. And the number of applications in which they are used is continuing to grow. In cars, they are used as blinkers, brake lights and headlamps. In cell phones and LCD televisions, they supply the illumination for displays. And this new light generation is increasingly being used to illuminate our roads. LEDs have long superseded halogen lamps in terms of effectiveness and product life. But not all LEDs are equally sophisticated. Light yield and lifespan depend to a great extent on the type of manufacturing material used.

The all-important base

It is the reflector socket into which the actual light-emitting diode is mounted that largely determines the effectiveness of LED light yield as well as the durable life of the LED. To achieve consistent light yield requires a high degree of reflection, meaning a pure-white plastic socket. Over time, the rate of reflection will decline considerably if the reflector socket is made of inferior material. And thus the lifespan of the LED would be reduced, too. Reflector sockets made of VESTAMID® HT*plus* remain significantly whiter even over a long period, enabling the LED to keep shining brightly. The good flowability of this material also facilitates miniaturization, making it possible to create even extremely small LEDs.



Reflector sockets made using VESTAMID® HT*plus* allow fabrication of even the smallest LEDs.

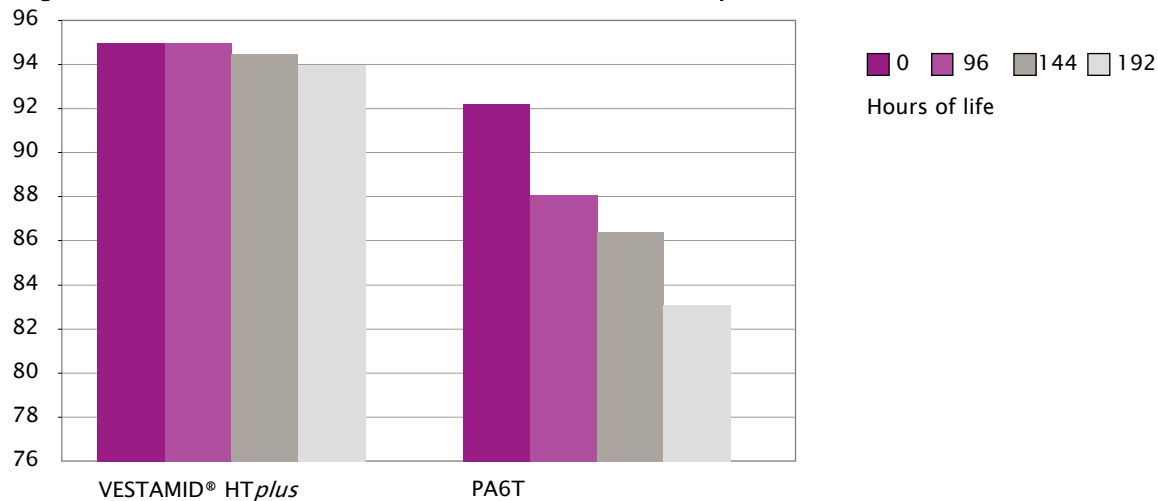
“Green” lighting

Because LEDs featuring VESTAMID® HT*plus* PA10T use such small amounts of energy and remain effective over such a long time, they are more environment friendly than any light bulb or halogen lamp. What’s more, VESTAMID® HT*plus* consists of 50% bio-based materials.

Additional technical benefits

- The light natural color of this material allows for a high degree of reflection
- Superior UV stability
- High degree of dimensional stability due to a low degree of water absorption
- Broader processing window compared to PA6T/X grades
- Excellent adhesion to metal and silicone

Degree of reflection in % (440 nm; 85°C/85% relative humidity)



VESTAMID® HTplus helps maintain a consistent degree of reflection, and thus light yield, even over a long period.

VESTAMID® HTplus LED polyphthalamide compound

Property	Test method	Unit	VESTAMID® HTplus	
Density	23 °C	ISO 1183	g/cm ³	1.47
Tensile test	ISO 527-1/2			
Stress at yield		MPa		86
Strain at yield		%		1.7
Tensile modulus	ISO 527-1/2	MPa		6300
CHARPY impact strength	23 °C	ISO 179/1eU	kJ/m ²	20 C ¹⁾
	-40 °C			19 C ¹⁾
CHARPY notched impact strength	23 °C	ISO 179/1eA	kJ/m ²	2.5 C ¹⁾
	-40 °C			2.4 C ¹⁾
Temperature of deflection under load	ISO 75-1/2			
Method A	1.8 MPa		°C	291
Method B	0.45 MPa		°C	270
Melting range	ISO 11357			
DSC			°C	about 292
Glass transition temperature			°C	about 121

¹⁾C = Complete break

® = registered trademark

October 2011

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